

LXXVI.—*Exotic Muscaridæ (Diptera)*.—IX.* By J. R. MALLOCH, Bureau of Biological Survey, Washington, D.C.

Subfamily *PHAONINÆ*.

Genus *OPHYRA*, R.-D.

The members of this genus are very widely distributed, and there is some doubt in my mind as to the distinctness of some of the described species. I suspect that several that are now listed as distinct will ultimately fall as synonymous with some of the older species. In this paper I present a key to the species in the British Museum material now before me, with some records of their distribution.

Key to Males.

1. Palpi rufous-yellow; hind tibia with short fine setulose hairs on antero-dorsal surface, one long postero-dorsal bristle beyond middle, and two short antero-ventral bristles; calyptræ yellow..... *ænescens*, Wied.
- Palpi black 2.
2. Hind tibia very conspicuously curved, furnished on ventral surfaces with soft, erect, black hairs which are longest at base of series, just before middle of tibia; mid-femur with two series of short spines near base on ventral surface; calyptræ fuscous *leucostoma*, Wied.
- Hind tibia straight or very slightly curved, and without hairs as above described; mid-femur with at most one series of short spines of bristles near base on ventral surface 3.
3. Apices of segments of fore tarsi narrowly yellowish or whitish; mid-femur with some very fine hairs near base on postero-ventral surface, without short spines; hind tibia straight, usually with one antero-dorsal and three postero-dorsal bristles, and some long setulose hairs on apical half of antero-ventral and postero-ventral surfaces, more bristle-like on the former *chalcogaster*, Wied.
- Fore tarsi black; mid-femur with one or more short spines or bristles on ventral surface near base; eye with a slight but distinct rounded emargination at or near middle of posterior margin 4.

* For Part VIII., see Ann. & Mag. Nat. Hist. (9) x., December 1922, pp. 573-587.

4. Hind tibia curved and with two series of long fine outstanding bristles, one on the apical two-thirds of antero-ventral and the other on the apical two-thirds of postero-ventral surface; hind femur with three or four of the bristles on the apical third of antero-ventral surface much longer than its diameter and a fine hair near base on ventral surface *anthrax*, Meig.
- Hind tibia straight, with a few long sub-decumbent setulose hairs on apical half of antero-ventral and postero-ventral surfaces; none of the bristles on apical fourth of antero-ventral surface of hind femur noticeably longer than the femoral diameter, one or two short straight bristles near base below *nigra*, Wied.

Key to Females.

1. Palpi rufous-yellow; frontal triangle extending broadly to anterior margin of interfrontalia, truncate or broadly rounded at anterior extremity; postero-dorsal bristle on hind tibia much longer than the other median bristles, situated well beyond middle; thorax without outstanding presutural acrostichal bristles *ænescens*, Wied.
- Palpi black; frontal triangle not extending to anterior margin, if so then its anterior extremity is acutely pointed; postero-dorsal bristle on hind tibia not longer than the other median bristles and situated at or very close to middle 2.
2. Frontal triangle extending to anterior margin of interfrontalia, heavily chitinised to apex; hind tibia with three or four antero-ventral bristles; anterior sterno-pleural bristle minute or absent *anthrax*, Meig.
- Frontal triangle not extending to anterior margin of interfrontalia, if almost so its anterior extremity is very poorly chitinised and subopaque; anterior sterno-pleural bristle distinct though smaller than the posterior one 3.
3. Frontal triangle broad, at the point of insertion of the cruciate bristles well over three times as wide as orbits at insertion of the forwardly-directed supraorbital, the latter minute; hind femur with three very short preapical antero-ventral bristles; hind tibia without an antero-dorsal median bristle; margins of lower calyptra white *nigra*, Wied.
- Frontal triangle less than three times as wide as orbits at insertion of lower supraorbital bristle, the latter strong but short; hind

- femur with more than three antero-ventral preapical bristles, which are also stronger; hind tibia with an antero-dorsal median bristle..... 4.
4. Arista black; hind tibia with two antero-ventral bristles; lower calyptra brownish yellow, with brown margins *leucostoma*, Wied.
- Arista yellow basally; hind tibia with one antero-ventral bristle; lower calyptra white, with whitish margins *chalcogaster*, Wied.

Ophyra ænescens, Wiedemann.

A common species throughout South and Central America, extending its range into the southern United States. Evidently a strictly New World form up to this time.

In the larval stages it is found in human excrement and manure, as are most of its congeners, so far as I know.

Represented in material before me from Monte Video, Uruguay.

Ophyra leucostoma, Wiedemann.

The genotype. Common throughout Europe, Canada, and the United States. One female specimen from Illinois sent to British Museum.

I have found this species very abundant around chicken-houses in Medicine Hat, Alberta, Canada. It soars like species of the genus *Fannia* and the Syrphidæ.

Ophyra chalcogaster, Wiedemann.

Distributed throughout the Orient and extending into Australia.

Specimens before me are from Southern China, Philippine Islands, India, Ceylon, Siam, Seychelles Islands, Mauritius, and Australia.

Ophyra anthrax, Meigen.

A moderately common European species which ranges into Africa and Asia.

Localities represented in material before me are Estcourt and Durban, Natal, and Hsikow, near Tientsin, China.

Ophyra nigra, Wiedemann.

I suspect that this species has been redescribed as *spinigera*, Stein.

I have seen specimens from Stannary Hills, Queensland.

Genus AUSTRALOPHYRA, nov.

Generic Characters.—Differs from *Ophyra* in having the hypopleura with moderately long black hairs on upper margin below and in front of the spiracle, the ocellar triangle very short, with the cruciate bristles well in front of its anterior extremity in female, and the orbits not polished in that sex. The ptilinum in neither sex has silvery pubescence.

Genotype, *Ophyra analis*, Macquart.

This species appears to be of Australasian origin, and differs in the above characters from the species of *Ophyra* from any other region, and also from the two species of *Ophyra* that occur in Australia.

I have before me specimens of *analis* from South Queensland and New South Wales.

Genus HYDROTÆA, R.-D.

Hydrotæa australis, sp. n.

Male.—Black. Thorax shining, with very faint grey pruinescence that is only distinct laterally, no distinct vittæ. Abdomen subopaque, basal tergite black, apical three densely pale grey-pruinescent, with a black dorso-central vitta which is much tapered posteriorly. Legs black. Wings slightly brownish basally. Calyptræ brownish. Halteres with black knobs.

Eyes bare, subcontiguous below ocelli; parafacials not visible from side; cheek almost linear; arista subnude. Thorax with four pairs of postsutural dorso-centrals, and four pairs of moderately long presutural acrostichals; hypopleura bare. Abdomen ovate. Fore femur with two spines at base of apical concavity, the apical one slender, the second one much swollen basally; mid-femur with four or five fine straight bristles on basal half of postero-ventral surface and rather numerous long setulose hairs on basal half of antero-ventral surface; mid-tibia and tarsi normal, the former with two posterior bristles; hind femur normal, with two or three short preapical antero-ventral bristles; hind tibia normal, with very fine short erect hairs along antero-dorsal surface, two fine antero-ventral bristles, a few erect setulose posterior hairs, and the postero-dorsal bristle practically indistinguishable. Outer cross-vein almost straight; penultimate section of fourth vein not longer than outer cross-vein and barely one-third as long as last section.

Female.—Differs from the male in being rather densely

brownish-grey pruinulent on thorax and abdomen, the latter lacking the dorso-central vitta; the legs are normal, the hind tibia has one antero-dorsal and two antero-ventral bristles, and the outer cross-vein is not as long as penultimate section of fourth vein.

Length 3-4 mm.

Type, male, allotype, and three paratypes, South Queensland (*T. L. Bancroft*). Paratypes, two males and four females, Kendall, New South Wales; one male and six females without locality but labelled "about cows," sent by Department of Public Health, Sydney, New South Wales.

Like *occulta*, Meigen, of Europe and North America, which it greatly resembles in the female sex, this species will probably be found in the larval and pupal stages in cow-dung.

The only Australian species of this genus previously described is *fuscocalyptrata*, Macquart. This differs in being over 6 mm. in length, and in colour, as well as in the venation and the armature of the fore femur, judging from the original description. I have not seen the species.

Hydrotæa nubilicosta, sp. n.

Female.—Black, distinctly shining. Ocellar triangle, orbits, and parafacials glossy black, interfrontalia brown when viewed from in front. Thorax with slight grey pruinescence and very faintly vittate. Abdomen unmarked. Legs black. Wings very noticeably browned on front half, most conspicuously so from apex of costal cell to apex of wing. Calyptræ white. Knobs of halteres black.

Eyes bare; frons normal, the triangle short, not extending to the cruciate bristles; arista with very short pubescence. Thorax with numerous fine hairs on the presutural acrostichal area, one or two pairs of the hairs near margins posteriorly stronger but not conspicuously so. Fore tibia without a posterior median bristle; mid-tibia with two posterior bristles; hind femur with a long fine hair near base on ventral surface and a series of fine bristles on antero-ventral surface, the longest one about one-fourth from apex; hind tibia with one postero-dorsal, one antero-dorsal, and one or two antero-ventral bristles. Outer cross-vein almost straight; first posterior cell slightly narrowed apically.

Length 6.5 mm.

Type, Villavicencio, Quatiquia River, Columbia, 400 feet, xi.-xii. 1914 (*Dr. A. Balfour*).

Hydrotæa cyaneiventris, Macquart.

The female of this species closely resembles an *Ophyra*, the frontal triangle being very large and glossy, extending almost to anterior margin and having the cruciate bristles situated in its lateral margins; the orbits and upper part of parafacials are also glossy black. The entire body is glossy blue-black in the female. The armature of the legs is similar to that of last species, but the wings are clear, slightly darker at bases, and the calyptreæ are brownish with darker margins.

One female, same locality as last species.

On the strength of this female I should not hesitate to place the species in *Ophyra*, but have not seen the male, and as Stein has examined this sex and retains it in *Hydrotæa* I cannot do otherwise than follow him, though I doubt the propriety of the course. It may be distinguished from the females of *Ophyra* listed on a preceding page, which have black palpi, by its having the hind tibia bristled as in *anesceus*.

Hydrotæa villosa, Stein.

A black species with similar habitus to that of *dentipes*, F., but the parafacials are broader and densely, almost golden-pollinose, the line of demarcation between this part and the glossy black part being very sharply drawn above; the eyes are hairy; and the male has the hind femur with several series of long fine setulose hairs below, the preapical ventral bristles being hardly stronger than the others. The hind tibia of male is normal, and has a long postero-dorsal bristle, a series of setulose hairs along the antero-dorsal surface, amongst which are some that are much stronger, and the antero-ventral and postero-ventral surfaces with some fine hairs.

Originally described from Bogota, Colombia. One male and two females from the same region as last two species.

Hydrotæa houghi, Malloch.

One female from Vernon, British Columbia, 1300 feet, 12. vi. 1902 (*Miss G. Ricardo*).

Helina australasiæ, sp. n.

Male.—Similar in colour to *reginæ*, Malloch, but the thorax is blackish blue instead of black, the abdomen is

lightly and evenly grey-pruinescent, with a faint dorso-central black vitta and no checkerings, the margins of the calyptræ are fuscous, and the parafacials white, not yellowish, pruinescent.

Eyes hairy; narrowest part of frons fully twice as wide as third antennal segment, orbits narrow, setulose on their entire length; triangle shining in front of ocelli. Thorax as in *reginæ*, but with at least one pair of strong presutural acrostichals. Legs as in *reginæ*, the hind femur with the antero-ventral bristles short and closely placed, extending from near middle to apex, and a few short setulæ at apex on postero-ventral surface.

Length 7 mm.

Type, Victoria, Australia (*C. French*), in British Museum. Paratypes, one male, Coaleston, Allyn River, New South Wales, 26. ii. 1921; one male, Sydney, New South Wales, 30. x. 1921 (Dept. Public Health, N.S.W.).

This species runs to Caption 3 in the key to Australian *Helinæ* in Part VI. of this series of papers, but is readily separable from the two species thereunder by the presence of at least one strong pair of presutural acrostichal bristles.

Helina nigrescens, Stein.

Male.—Entirely black, slightly shining. Thorax grey-pruinescent, rather indistinctly quadrivittate, and with a faint bluish tinge. Abdomen with grey pruinescence, each tergite with a pair of large, shining, subtriangular, poorly-defined, black spots and the bases of bristles set in black dots. Wings slightly smoky, inner cross-vein distinctly, outer indistinctly, infuscated. Calyptræ grey, margins fuscous. Halteres with black knobs.

Eyes long-haired; frons about as wide as third antennal segment; arista almost bare, except on basal half, where the hairs are a little longer than its basal diameter. Thorax with four pairs of postsutural dorso-centrals, and two or three pairs of well-developed presutural acrostichals; hypopleura bare. Abdomen ovate, the dorsal bristles rather strong apically. Fore tibia without a median posterior bristle; mid-tibia with three posterior bristles; hind femur with an almost complete series of antero-ventral bristles which are short basally, and some setulose hairs at base on postero-ventral surface; hind tibia with two antero-dorsal, and three or four antero-ventral bristles, and a few setulæ on posterior surface at middle.

Length 5.5 mm.

Locality, Blue Mountains, New South Wales, 15. i. 1922 (Dept. Health, N.S.W.).

This species runs to Caption 6 in the key already referred to, but differs from all species in the key that fall in the same segregate by having the halteres black, margins of calyptreæ fuscous, fore tibia without a posterior median bristle, the arista pubescent, and the thorax with distinct presutural acrostichals.

Helina howei, sp. n.

Female.—Metallic greenish blue. Thorax densely grey-pruinescent, with rather conspicuous vittæ anteriorly. Abdomen faintly, evenly grey-pruinescent. Head black, interfrontalia opaque, facial orbits and cheeks whitish pruinescent. Wings slightly brownish, darker along costa, the cross-veins and apex of first vein with very distinct clouding. Legs black. Calyptreæ and their fringes white. Knobs of halteres black.

Frons about one-third of the head-width; triangle narrow, extending almost to anterior margin of frons; eyes very indistinctly haired; arista plumose. Thorax with three pairs of postsutural dorso-centrals; prealar very small; presutural acrostichals not differentiated from the hairs. Abdomen ovate. Fore tibia missing; mid-tibia with two posterior bristles; hind femur with one or two preapical antero-ventral bristles; hind tibia with one antero-ventral and two antero-dorsal bristles. Outer cross-vein curved, less than its own length from apex of fifth; veins 3 and 4 divergent apically.

Length 5 mm.

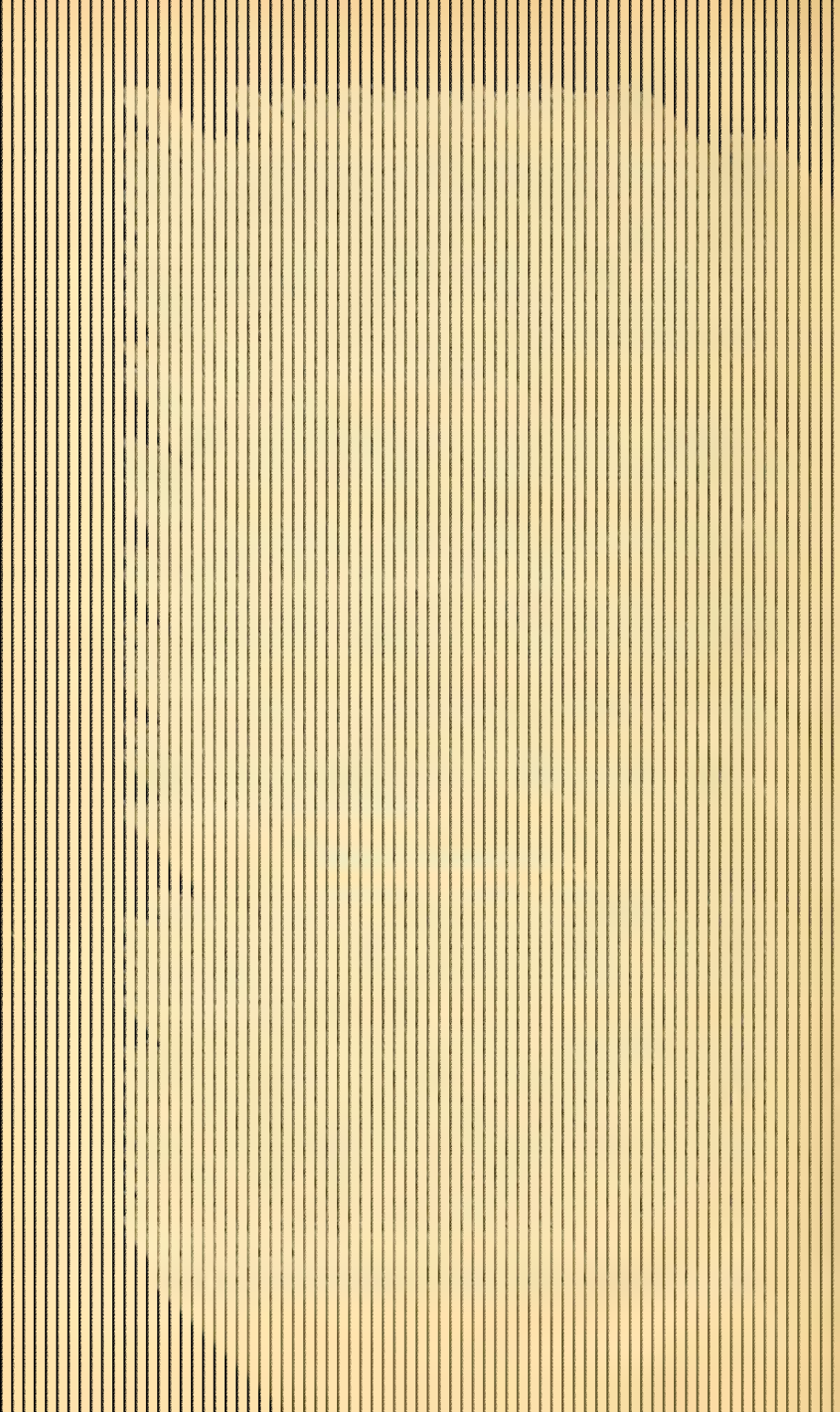
Type, Lord Howe Island, New South Wales, 11. iii. 1910 (Dept. Public Health, N.S.W.).

In the key already referred to this species runs out at the first Caption, differing from both segregates in several characters, thus necessitating another segregate under number 1 as follows:—

Thorax and abdomen greenish blue; knobs of halteres black; arista with very long hairs, plumose; cross-veins of wings distinctly infuscate; calyptreæ white; thorax with three pairs of postsutural dorso-centrals. *howei*, sp. n.

Helina hirtibasis, sp. n.

Male.—Very similar to *whitei*, Malloch, differing in having the frons narrower, less than twice as wide as third antennal segment, while in *whitei* it is at least twice as wide;



This species runs to *antarctica* in the key already referred to, but is distinguished at once by the colour of the antennæ and palpi, which in the former are entirely black, only the palpi being rarely paler at bases.

Melanocheilia tenuicornis, sp. n.

Female.—Very similar to *ordinata*, Hutton, in the structure of the head and antennæ. Differs very strikingly in colour, the pruinescence on thorax and abdomen being bluish grey instead of brownish grey, the abdomen especially appearing bluish. The pruinescence on orbits and parafacials is brown except at base of antennæ where it is white, whereas in *ordinata* it is entirely yellow, and the upper half of the cheeks is rufous instead of yellow. The thoracic vittæ are narrowly fused in front of suture, just behind suture, and again beyond middle, the median spot on scutellum is as large as the lateral spots and covers most of the disc basally instead of being very small. Each abdominal tergite from 1 to 3 has a pair of moderate-sized subtriangular brown spots, and the fourth has sometimes a brown spot in centre at base. The tibiæ are rufous and the mid-pair have an antero-dorsal bristle. Third antennal segment at least four times as long as second; the longest hairs on arista are noticeably longer than its basal diameter, whereas in *ordinata* they are not as long, the eyes are hairy, and the frons is at least three times as wide as the slender third antennal segment. The lower calyptra and the knobs of halteres are fuscous, not yellow. Chætotaxy as in *ordinata*.

Length 8–9 mm.

Type and one paratype, Crofton, New Zealand, 28. x. 1906 (*W. Wesché*).

This species was compared with the type-specimen of *ordinata*, Hutton.

Genus *EXSUL*, Hutton.

This genus was erected for the reception of one species, *singularis*, Hutton. Stein omitted it from his 'Catalogue of the Genera of Anthomyiidae of the World' in 1919, probably because he had some doubt as to its relationships. I have seen the genotype and type-specimen, as well as three other males from New Zealand, and find that it is closely related to *Lispodes*, Malloch. The basal abdominal sternite is bare, the fore and mid femora and tibiæ are armed on their ventral surfaces with short stout spines, and the wings are abnormally broad, being about as wide as long.

The wing-characters alone serve to separate *singularis*
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from another species which I have before me, and, believing as I do that either a difference in a structure of more fundamental importance than the wing, or the existence of several characters in common distinguishing the species of a group from their allies are essential to relegate the forms to distinct generic status, I cannot reasonably debar this new form from *Exsul*, though the habitus of the two species is entirely different. It is also pertinent to state that I have seen only the male of *singularis*; the female may have more normal wings. I would therefore amend the generic description by eliminating reference to the shape of the wings.

Exsul tenuis, sp. n.

Male.—Black, densely opaque pale grey pruinulent. Head whitish pruinulent, the parafacials almost silvery, parts showing blackish in some lights. Dorsum of thorax with two narrow black vittæ in front of suture between the dorso-centrals, and a broader one on each side beyond the dorso-centrals, all of which are continued beyond suture but not to hind margin, and a brown central vitta posteriorly; scutellum with a blackish spot on each side at base; mesopleura with a faint brown spot on upper hind margin. Abdomen with a pair of subtriangular brown spots near hind margin of the first three tergites. Legs black. Wings whitish, with a brown suffusion along sides of all longitudinal and cross veins. Calyptræ white. Knobs of halteres brown.

Eyes hairy; frons much widened anteriorly, at narrowest part, in front of anterior ocellus, fully twice as wide as third antennal segment; orbits with bristles to above middle, and fine hairs above and laterad of them; parafacials haired on upper half; antennæ half as long as face, third segment 1.5 as long as second; arista almost bare, second segment thick, slightly longer than wide, third much thickened at base, rapidly tapered; facial ridges setulose on lower half; parafacials about 1.5 as wide as third antennal segment, and half as wide as height of cheek; palpi slightly dilated apically, bristly; proboscis thick and glossy, with very strong apical teeth. Thorax with four pairs of postsutural dorso-centrals; both intra-alars strong; presutural acrostichal hairs sparse; sterno-pleurals 1:1; hypopleura bare. Abdomen cylindrical, very slender, about twice as long as thorax, with sparse long setulose hairs; basal sternite bare; seventh tergite cleft longitudinally in centre, with long setulose hairs on sides of cleft; fifth sternite with a deep V-shaped notch.

Ventral spines on all femora covering ventral surface, except apically; fore and mid tibiæ with one or two posterior setulose hairs; antero-ventral and postero-ventral spines on all femora stout; hind tibia with one postero-dorsal and two antero-dorsal setulæ; tarsal claws long and strong. Wings narrow; veins 3 and 4 divergent apically; outer cross-vein at about its own length from inner and one-third of its own length from apex of fifth vein.

Female.—Differs from the male in having the thorax and abdomen more robust, the latter being ovate; the abdominal spots much larger, extending along the entire hind margin, except in centre; the longitudinal wing-veins not noticeably browned; and the tibial bristles stronger, with one antero-dorsal bristle on mid-tibia.

Length 9–12 mm.

Type, male, allotype, and two male paratypes, Milford, New Zealand, 24. xii. 1920 (*C. Fenwick*).

It is remarkable that all the specimens of *Exsul* that I have seen, including the genotype, are from Milford Sound. The genus probably occurs elsewhere on the sea-coast of at least the southern island.

LXXVII.—*Some new Short-horned Grasshoppers from East Africa*. By B. P. UVAROV, F.E.S., Assistant Entomologist, Imperial Bureau of Entomology.

THE present paper is based on the collections sent to the Imperial Bureau of Entomology by the Government Entomologists in Uganda and Kenya Colony. All the actual types are preserved in the British Museum; a few paratypes of the species represented by sufficiently long series of specimens have been returned to the Government Entomologists.

1. *Gastrimargus mirabilis*, sp. n.

♂. Much more compressed laterally than any known species of the genus. Antennæ reaching halfway between the front and middle coxæ. Face callosely rugulose. Frontal ridge in profile distinctly convex, forming a very wide curve with the vertex; its surface slightly convex, punctured, and callosely rugulose; its margins not raised, subcallous, almost reaching the clypeus, very feebly approximated below the ocellum. Lateral facial keels distinctly arched. Cheeks